REMARKS

The above amendments and following remarks are responsive to all the points of objections and rejection raised by the Examiner in the non-final Office Action dated November 27, 2002. No new matters have been introduced by the Amendment. Entry and consideration of the Amendment is respectfully requested.

The attached to this Amendment shows the changes made to claims 11, 12, 20, 23, 24, 30, 36, 42, and 44 by bracketing the text that has been deleted and underlining the text that has been added.

STATUS OF APPLICATION

Upon entry of this Amendment, claims 11, 12, 20, 23, 24, 30, 36, 42, and 44 will have been amended and claims 1-75 will be pending in the application.

In the Office Action, claims 1-10 stand rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,445,416 to Kyuma et al. (hereafter Kyuma). Claims 11-23 stand rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 5,786,853 to Ohkawara et al. (hereafter Ohkawara). Claims 24, 27, 28, 30, 33, 34, 36, 39, 40 and 42-45 stand rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,184,932 to Tanaka. Claims 46, 48-51, 54, 56-59, 62, 64-67, 70 and 73 stand rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,438,190 to Kaneda et al. (hereafter Kaneda). Claims 25, 26, 29, 31, 32, 35, 37, 38, and 41 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Tanaka. Claims 52, 53, 60, 61, 68, and 69 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Kaneda in view of Kyuma. Claims 47, 55, 63, 71, 72, 74 and 75 stand

rejected under 35 U.S.C. §103(a) as being unpatentable over Kaneda in view of Hirasawa (U.S. Patent No. 5,436,684).

RESPONSE TO REJECTIONS UNDER 35 U.S.C. §§102(e)(b) & 103(a)

In the Office Action, claims 1-10 stand rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,445,416 to Kyuma et al. (hereafter Kyuma). Claims 11-23 stand rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 5,786,853 to Ohkawara et al. (hereafter Ohkawara). Claims 24, 27, 28, 30, 33, 34, 36, 39, 40 and 42-45 stand rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,184,932 to Tanaka.

Claims 1-10

Applicant respectfully submit that Kyuma does not disclose an apparatus or computer storage device that "stores and uses correction data for correcting the control information used to control the lens drive means," as directed in claims 1 and 7. Additionally, Kyuma does not disclose a computer storage device that is used for "storing the difference between theoretical control information and true control information," as directed in claim 10.

In the Office Action, the Examiner relies on Col. 5, lines 45-48 and Col.6, line 45-Col.7, line 9 as well as Figs. 9-11 for disclosing the elements of claims 1, 7 and 10, noted above. More specifically, Col. 5, lines 45-48 describe the loci data in Fig. 10 as being obtained by plotting the position of the compensation lens at which an image can be focused while the subject distance is varied with respect to each focal length of the magnification varying lens. Additionally, Col. 6, lines 45-55 disclose that the loci data in Fig. 10 is then stored in a lens controlling microcomputer or the like in advance of a magnification varying operation. For example,

specific loci data is read according to the position or the moving speed of the magnification varying lens, and the compensation lens is moved on the basis of the read loci data. Col. 6, line 56-Col. 7 line 9 describes Fig. 11 as an illustration of a locus tracking method that uses two sets (an, bn) of points that indicate representative loci data stored in the lens controlling microcomputer. The two sets of points (an, bn) are then used to calculate corresponding loci for controlling the movement of the lens. Although, the above sections of Kymua appear to disclose the use of stored loci points to calculate loci data for controlling a movable lens, it does not to disclose the use of correction data or the difference between theoretical data and true data, as recited in claims 1, 7 and 10. Therefore, claims 1, 7 and 10 are believed to be distinguishable over Kyuma at least for the reasons noted above. Likewise, claims 2-6 and 8-9 are also believed to be distinguishable over Kyuma based on their dependency on claims 1 and 7, respectively.

Claims 11-23

Claims 11, 20 and 23, as amended, recite that the apparatus and computer storage medium of the present invention are able to detect the attachment or detachment of an external device "between the lens apparatus and the camera unit," which is a feature not believed to be disclosed by Ohkawara.

Ohkawara is directed to a lens control device that includes the use of a detachable wide-angle lens. The wide-angle lens is mounted onto the zoom lens unit to modify the focal length and power of the lens unit. When mounted, the wide-angle lens is positioned in front of the first lens group in a manner that allows the optical axes of both to be aligned. (Col. 1, lines 51-60). Therefore, the external device (wide-angle lens) disclosed in Ohkawara is not mounted between

the lens unit and a camera unit, as recited in claims 11, 20 and 23. Accordingly, claims 11, 20 and 23 as amended are believed to be distinguishable over Ohkawara.

Claims 12, 21 and 22

Ohkawara does not disclose an apparatus or computer storage medium that "controls the movement of a moveable lens using corrected control data when an external device is attached," as recited in claims 12, 21 and 22. In the Office Action, the Examiner relies on Col. 12, lines 44-48 for disclosing the above feature. Specifically, Col. 12, lines 44-48 disclose that when the wide-angle lens is attached, the driving speed of the focus compensation lens is determined based on stored data so as to follow a focus position that shifts in accordance with the shifting of the variator lens. However, similar to Kyuma, Ohkawara does not disclose the use of corrected control data for controlling a moveable lens. Therefore, claims 12, 21 and 22 are believed to be distinguishable over Ohkawara. Likewise, claims 13-19 are also believed to be distinguishable over Ohkawara based on their dependency from claim 12.

Claims 24, 30, 36, 42 and 44

Claims 24, 27, 28, 30, 33, 34, 36, 39, 40 and 42-45 are rejected under 35 U.S.C. §102(e). However, Tanaka does not disclose an apparatus, method or storage medium that "discriminates an in-focus level and a direction to drive to reach an in-focus point by detecting focus states in a predetermined period from a video signal and comparing the focus states upon zooming," as recited in claims 24, 30, 36, 42 and 44. In the Office Action, the Examiner relies on Col. 5, lines 59-61 for disclosing an AF microcomputer with the claimed features. Specifically, the Examiner relies on the AF computer in Tanaka that detects a vertical scanning period of the video signal to anticipate the above claims. However, Col. 5, lines 59-61 does not disclose that the AF

microcomputer detects focus states in a predetermined period and then compares the focus states. Accordingly, claims 24, 30, 36, 42 and 44 are believed to be distinguishable over Tanaka. Likewise, claims 25-29, 31-35 and 37-41 are also believed to be distinguishable over Tanaka.

Claims 46, 54, 62, 70 and 73

Claims 46, 48-51, 54, 56-59, 62, 64-67, 70 and 73 are rejected under 35 U.S.C. §102(b). Applicant respectfully submits that Kaneda does not disclose an apparatus, method or storage medium that moves a zoom lens group and focus compensation lens group to trace the stored locus data, as recited in claims 46, 54, 62, 70, and 73. In the Office Action, the Examiner relies on Col. 7, line 41-Col. 8, line 51 for disclosing the above feature. However, Col. 7, line 41-Col. 8, line 51 discloses that stored locus data controls the respective motor drivers so that the focus lens can trace on the focusing locus, which is determined by the positions of the zoom lens and focus lens. Therefore, Kaneda does not discloses the use of locus data to move both the zoom lens group and focus compensation lens group. Accordingly, claims 46, 54, 62, 70 and 73 are believed to be distinguishable over Kaneda. Likewise, claims 47-53, 55-61, 63-69, 71-72 and 74-75 are also believed to be distinguishable over Kaneda based on their dependency on claims 46, 54, 62, 70 and 73, respectively.

Claims 24, 30, 36, 46, 54, 62, 70 and 73

Claims 25, 26, 29, 31, 32, 35, 37, 38, 41, 47, 52, 53, 55, 60, 61, 63, 68, 69, 71, 72, 74 and 75 are rejected under 35 U.S.C. §103(a). The Examiner relies on different combinations of the same references noted above. For the same reasons stated above, even if one of ordinary skill in the art were to combine the teachings of the cited prior art, the combination still would not

possess all limitations recited in claims 24, 30, 36, 46, 54, 62, 70 and 73 from which claims 25, 26, 29, 31, 32, 35, 37, 38, 41, 47, 52, 53, 55, 60, 61, 63, 68, 69, 71, 72, 74 and 75 depend.

CONCLUSION

In view of the above Amendment and arguments, Applicant respectfully submits that all of the pending claims are patentable over the prior art of record, and are now in condition for allowance.

AUTHORIZATION

A check for $410.00 covering the fees for the two-month extension of time is attached. The Commissioner is hereby authorized to charge any additional fees which may be required for this amendment, or credit any overpayment to Deposit Account 13-4503, Order No. 1232-4494.

Respectfully submitted,
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PATENT
Attorney's Docket No. 1232-4494

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s)	:	Seiya OHTA	Group Art Unit: 2615
Serial No	:	09/211,132	Examiner: GENCO, B. C.
Filed	:	December 14, 1998	
For	:	**OPTICAL EQUIPMENT AND ITS CONTROL METHOD, AND COMPUTER-READABLE STORAGE MEDIUM**	

ATTACHMENT SHOWING MARKUP OF CHANGES

Commissioner For Patents
Washington, D.C. 20231

Sir:

Amendments made to claims 11, 12, 20, 23, 24, 30, 36, 42, and 44 herein are indicated in this attachment by bracketing the text that has been deleted and underlining the text that has been added.

IN THE CLAIMS:

Please note the following changes to claims 11, 12, 20, 23, 24, 30, 36, 42, and 44:

11. (Amended) A lens apparatus comprising:

movable lens means for forming an objet image on a predetermined plane while moving along an optical axis;

drive means for driving said movable lens means;

connection means for detachably attaching an external device;

detection means for detecting attachment/detachment of said external device between the lens apparatus and a camera unit;

first storage means for storing first control information for controlling a position of said movable lens means when said external device is attached;

second storage means for storing second control information for controlling the position of said movable lens means when said external device is not attached; and

control means for reading out contents of said first or second storage means in accordance with a detection result of said detection means, and controlling said drive means using the first or second control information.

12. (Amended) A lens apparatus comprising:

movable lens means for forming an objet image on a predetermined plane while moving along an optical axis;

drive means for driving said movable lens means;

connection means for detachably attaching an external device;

detection means for detecting attachment/detachment of said external device;

first storage means for storing first control information for controlling a position of said movable lens means when said external device is attached;

second storage means for storing correction data for correcting the control information; and

control means for reading out contents of said first and/or second storage means in accordance with a detection result of said detection means, and controlling said drive means using the control information when said external device is not attached [or] and using control

information obtained by correcting the control information by the correction data when said external device is attached.

20. (Amended) A computer-readable storage medium storing a program for executing:

a sequence of detecting if an external device is attached between a lens apparatus and a camera unit; and

a sequence of controlling a position of a movable lens using first control information when it is detected that the external device is not attached, and controlling the position of the movable lens using second control information when it is detected that the external device is attached.

23. (Amended) A computer-readable storage medium storing correction data for correcting control information that controls a position of a movable lens when an external apparatus is attached [to a] between a lens apparatus and a camera unit, wherein the lens apparatus has a [having the] movable lens.

24. (Amended) An imaging apparatus which has a lens system including a zoom lens group for changing a field angle and a focus compensation lens group having both a function of correcting a change in focal plane position upon movement of said zoom lens group and a focus adjustment function, and storage means for storing a locus that represents a positional relationship between said zoom lens group and focus compensation lens group in

an in-focus state in correspondence with an object distance, and moves said zoom lens group and focus compensation lens group to trace the locus stored in said storage means upon zooming, comprising:

generation means for generating a video signal by photoelectrically controlling an optical image obtained via said lens system;

discrimination means for discriminating an in-focus level and a direction to drive to reach an in-focus point by detecting focus states [at] in a predetermined period from the video signal generated by said generation means and comparing the focus states upon zooming; and

determination means for determining the period on the basis of a moving speed of said zoom lens group.

30. (Amended) An imaging method for an imaging apparatus which has a lens system including a zoom lens group for changing a field angle and a focus compensation lens group having both a function of correcting a change in focal plane position upon movement of said zoom lens group and a focus adjustment function, and storage means for storing a locus that represents a positional relationship between said zoom lens group and focus compensation lens group in an in-focus state in correspondence with an object distance, and moves said zoom lens group and focus compensation lens group to trace the locus stored in said storage means upon zooming, comprising:

the generation step of generating a video signal by photoelectrically converting an optical image obtained via said lens system;

the discrimination step of discriminating an in-focus level and a direction to drive to reach an in-focus point by detecting focus states [at] in a predetermined period from the video signal generated in the generation step and comparing the focus steps upon zooming; and

the determination step of determining the period on the basis of a moving speed of said zoom lens group.

36. (Amended) A storage medium which is used in an imaging apparatus having a lens system including a zoom lens group for changing a field angle and a focus compensation lens group having both a function of correcting a change in focal plane position upon movement of said zoom lens group and a focus adjustment function, and storage means for storing a locus that represents a positional relationship between said zoom lens group and focus compensation lens group in an in-focus state in correspondence with an object distance, and which stores a program for moving said zoom lens group and focus compensation lens group to trace the locus stored in said storage means upon zooming, said program stored in said storage medium including:

a generation routine for generating a video signal by photoelectrically converting an optical image obtained via said lens system;

a discrimination routine for discriminating an in-focus level and s direction to drive to reach an in-focus point by detecting focus states [at] in a predetermined period from the video signal generated in the generation routine and comparing the focus stets upon zooming; and

a determination routine for determining the period on the basis of a moving speed of said zoom lens group.

42. (Amended) A lens control apparatus comprising:

a zoom lens;

a focus lens;

focus detection means for detecting a focus state from a video signal [at] in a predetermined period;

focus control means for controlling said focus lens on the basis of an output from said focus detection means; and

control means for changing the period on the basis of a moving speed of said zoom lens.

44. (Amended) A lens control method comprising:

the focus detection step of detecting a focus state from a video signal [at] in a predetermined period in an imaging apparatus having a zoom lens and focus lens;

the focus control step of controlling said focus lens on the basis of an output from the focus detection step; and

the control step of changing the period on the basis of a moving speed of said zoom lens.